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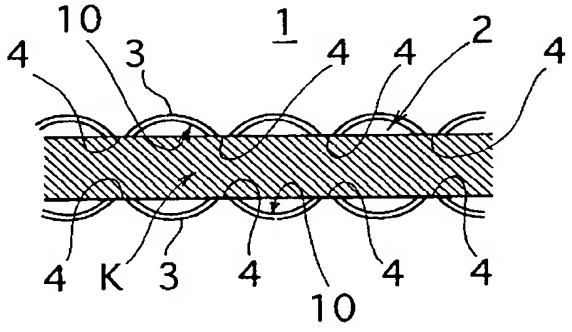
(54)【考案の名称】　ナイフ植込用ダイボード

(57)【要約】
【目的】　ナイフを強固に固定できると共に、一旦固定したナイフをがたつかないように保持できるナイフ植込用ダイボードを提供する。
【構成】　材質が木質であって、ダイシリンダーに取付けた状態で円筒状を成す。ナイフ植込用溝２の形状が、連珠型である。ナイフ植込用溝２は、レーザーのバルス発振照射にて加工され、両側面が炭化層３を有する。ナイフ植込用溝２は、ナイフＫを植込んだ状態で、波の頂点４がナイフ圧入時に潰された連続波10を両側面に有し、その潰された頂点４は、炭化層３が除去されて木質である。



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【実用新案登録請求の範囲】

【請求項１】　ダイシリンダーに取付けた状態で円筒状を成すダイボードに於て、ナイフ植込用溝２の形状が、連珠型であることを特徴とするナイフ植込用ダイボード。

【請求項２】　ダイシリンダーに取付けた状態で円筒状を成し、かつ、ナイフＫを植込んだ状態で、波の頂点４…がナイフ圧入時に潰された連続波10，10を両側面に有する連珠型のナイフ植込用溝２を、有することを特徴とするナイフ植込用ダイボード。

【請求項３】　ナイフ植込用溝２が、レーザーのバルス発振照射にて加工された請求項１又は２記載のナイフ植込用ダイボード。

【請求項４】　材質が木質であって、ナイフ植込用溝２がレーザーのバルス発振照射にて加工されて、該ナイフ植込用溝２の両側面が炭化層３を有すると共に、ナイフ圧入時に潰された連続波10，10の頂点４…は、上記炭化＊

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＊層３が除去されて木質である請求項２記載のナイフ植込用ダイボード。

【図面の簡単な説明】

【図１】本考案の一実施例を示す斜視図である。

【図２】要部拡大図である。

【図３】要部拡大断面図である。

【図４】溝加工装置の一例を示す簡略正面図である。

【図５】ナイフを植込んだ状態の拡大断面図である。

【図６】ナイフを植込んだ状態の拡大断面図である。

【図７】従来例の製造工程説明図である。

【図８】従来例の要部拡大断面図である。

【符号の説明】

２　ナイフ植込用溝

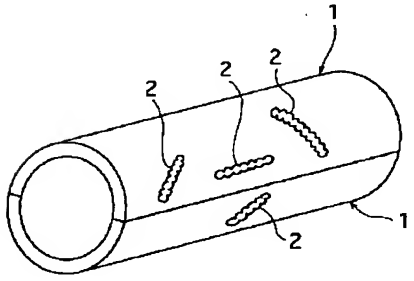
３　炭化層

４　頂点

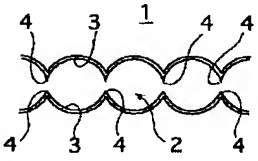
10　連続波

Ｋ　ナイフ

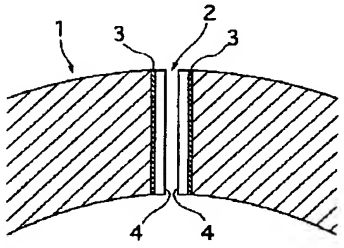
【図１】



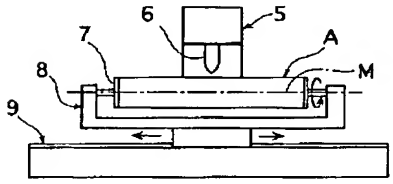
【図２】



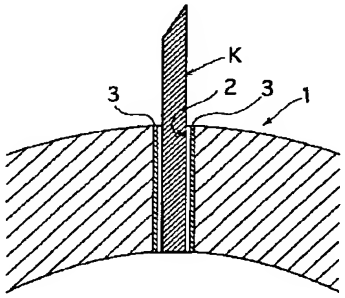
【図３】



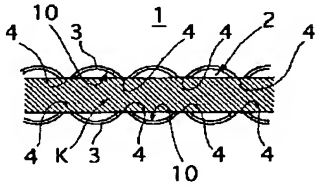
【図４】



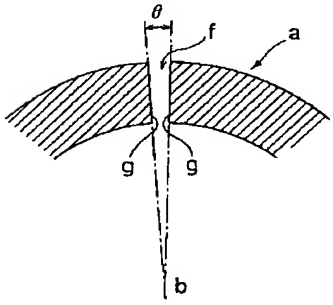
【図５】



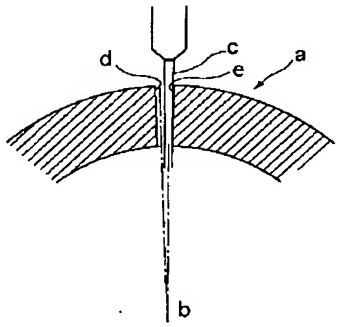
【図６】



【図８】



【図７】



【考案の詳細な説明】

【０００１】

【産業上の利用分野】

本考案は、ナイフ植込用ダイボードに関する。

【０００２】

【従来の技術】

厚紙等を所定形状に切断するための帯状のナイフが植込まれるナイフ植込用ダイボードとしては、例えば、２つの半割体をダイシリンダーに取付けた状態で円筒状を成すものがあった。しかして、従来の円筒状のナイフ植込用ダイボードでは、ダイボードを成す半割体の外周面に、半割体の軸心に直交する方向へレーザーを連続的に照射しつつ、半割体の軸心廻りの回転とその軸心と平行な方向へのレーザー発射ノズルの移動とを制御して、相互に平行に対向する両側面を有するナイフ植込用溝を形成していた。

【０００３】

【考案が解決しようとする課題】

しかし、上述のようにして形成された従来のダイボードでは、半割体が木質である場合、ナイフ植込用溝の相互に平行な両側面が炭化層となるため、溝にナイフを圧入すると、ナイフの側面とダイボードの木質との間に脆弱な炭化層が介在して、ナイフの固定強度が小さくなるという問題があった。また、ナイフ植込用溝がレーザーの連続照射により形成されるため、レーザーのエネルギー密度が比較的小さくなり、一回の照射では大きな幅寸法の溝を形成できなかった。このため、植込むべきナイフの厚みが大である場合には、一旦レーザーの連続照射による溝の一側面を形成した後に、僅かに横に位置をずらせて再びレーザーの連続照射にて溝の他側面を形成して、大きな幅寸法のナイフ植込用溝を形成しなければならず、加工能率が悪かった。

【０００４】

さらに、上記の如く２本の小さな幅の溝にてナイフ植込用溝を形成すると、図７に示すように、レーザーｃは半割体ａの軸心ｂに直交する方向へ照射されるため、軸心ｂと略平行な方向の溝を形成する場合、先に形成した小幅溝ｄと後に形

成された小幅溝ｅとが、横断面に於て相互に平行とならず、図８に示すように、大きな幅寸法のナイフ植込用溝ｆの両側面ｇ，ｇは、相互角度θをもって外方へ次第に幅広となる傾斜面となっていた。このため、溝ｆにその後ナイフを圧入しても、溝ｆの外側の部分に隙間が生じて、ナイフががたつくという問題があった。

【０００５】

そこで、本考案は、上述の問題を解決して、ナイフを強固に固定できると共に、一旦固定したナイフをがたつかないように保持できるナイフ植込用ダイボードを提供することを目的とする。

【０００６】

【課題を解決するための手段】

上述の目的を達成するために本考案に係るナイフ植込用ダイボードは、ダイシリンダーに取付けた状態で円筒状を成すダイボードに於て、ナイフ植込用溝の形状が、連珠型である。また、ダイシリンダーに取付けた状態で円筒状を成し、かつ、ナイフを植込んだ状態で、波の頂点がナイフ圧入時に潰された連続波を両側面に有する連珠型のナイフ植込用溝を、有する。

【０００７】

なお、ナイフ植込用溝が、レーザーのパルス発振照射にて加工されているのも好ましい。また、材質が木質であって、ナイフ植込用溝がレーザーのパルス発振照射にて加工されて、該ナイフ植込用溝の両側面が炭化層を有すると共に、ナイフ圧入時に潰された連続波の頂点は、上記炭化層が除去されて木質であるのも望ましい。

【０００８】

【作用】

（請求項１によれば）ナイフ植込用溝の形状が、連珠型なので、溝の両側面は波状となる。また、ナイフを植込むと、溝の両側面の波の頂点部分のみが、ナイフの両側面に圧接するので、ナイフの厚み寸法にばらつきがあってもがたつきがなく、強固にナイフが保持される。

【０００９】

（請求項２によれば）ナイフを植込んだ状態で、溝の両側面の波の頂点がナイフ圧入時に潰されているため、ナイフの厚み寸法にばらつきがあっても、その波の頂点がナイフの両側面に強く圧接してナイフが強固に保持される。

【００１０】

（請求項３によれば）ナイフ植込用溝が、レーザーのパルス発振照射にて加工されているため、照射されるレーザーのエネルギー密度が大きくなり、瞬間的な１回のレーザー照射によりダイボードに生じる孔の内径は大きくなる。このため、ナイフの肉厚が大きい場合に、連珠状のナイフ植込用溝を大きくすることが可能となる。また、ナイフ植込用溝の両側面は、横断面形状に於て相互に平行となり、ナイフを植込んだ状態に於て、ナイフががたつかない。

【００１１】

（請求項４によれば）ナイフ植込用溝にナイフを圧入した時に潰された連続波の頂点は、炭化層が除去されて木質であるめ、ナイフに圧接した頂点の部分は圧縮強度が大きくなると共に、圧接力も大となる。

【００１２】

【実施例】

以下、実施例を示す図面に基づき本考案を詳説する。

【００１３】

図１は本考案に係るナイフ植込用ダイボードの一実施例を示し、このダイボードは、厚紙等の紙を所定形状に連続的に切断するナイフを固定保持するためのものであり、２つの半割体１，１から構成され、図示省略のダイシリンダーに取付けた状態で円筒状を成す。

【００１４】

しかして、図１と図２と図３に示すように、このダイボードは、ナイフ植込用溝２…の形状が、連珠型であり、その両側面は多数の頂点４…を有する連続波状である。

【００１５】

また、このダイボード―――即ち半割体１，１―――は、材質が積層合板の木質であって、ナイフ植込用溝２がレーザーのパルス発振照射にて加工されて、該

ナイフ植込用溝２の両側面はレーザー熱によって炭化層３，３が形成される（図２と図３参照）。即ち、炭化層３，３は、レーザーの熱により木質が焦げて炭化したものであり、ナイフ植込用溝２の連続波状の両側面に沿った薄い層として形成されている。

【００１６】

ところで、図４は、上記のようなレーザーのパルス発振照射にてナイフ植込用溝２を形成するための溝加工装置の一例を示し、この装置は、床面等に固定されると共に図外の大出力レーザー発生器からパルス発振レーザーが導入されるレーザー導入アーム５と、そのアーム５の先端に上下動可能に付設されたレーザー照射ノズル６と、本考案のダイボードＡの素材が取付けられる回転保持体７を有するスライド支持枠８と、そのスライド支持枠８を回転保持体７の軸心と平行な方向へスライド可能に支持する固定基台９と、を備えている。上記ノズル６からパルス発振照射されるレーザーは、ダイボードＡの軸心Ｍに直交する方向へ発射される。

【００１７】

（図外のコンピュータ等の制御手段からの出力信号によって）上記回転保持体７の回転制御及びスライド支持枠８の往復動制御を行い、微小寸法ずつの送りを付与しつつ、照射ノズル６から断続的にレーザーを照射して、上記連珠型の溝２を形成してゆく。

【００１８】

具体的には、図３の断面図に於て、パルスとして断続的に照射されるためエネルギー密度の高いレーザーが照射され、半割体１には、レーザーの径寸法に比較して大き目の孔が形成できる。その孔を所定ピッチで複数個相互に連続するように開けることにより、連珠型のナイフ植込用溝２が形成される。

【００１９】

即ち、パルス発振照射によれば、連続照射に比して、レーザーのエネルギー密度が高くなり、１回のパルスにより生じる孔の内径を大きくすることができる。従って、予め設定しておいた線（形状）に沿ってレーザーのパルス発振照射を１通り行うのみで、厚肉のナイフに対応する大幅のナイフ植込用溝２を形成するこ

とができ、加工能率が高くなる。なお、小幅のナイフ植込用溝２を形成することも容易である。

【００２０】

また、ナイフ植込用溝２の両側面は同時に形成されるため、横断面に於て相互に平行である。このため、図５に示すように、ナイフＫを溝２に植込んだ状態では、ナイフＫの両側面と、それに当接する溝２の連続波の頂点４，４との間には、隙間は生じなくなり、がたつきを防止できる。

【００２１】

これを詳しく説明すると、図６に示すように、ナイフＫを圧入して植込んだ状態で、波の頂点４…がナイフ圧入時に潰された連続波10，10を両側面に有する。かつ、ナイフ圧入時に潰された連続波10，10の頂点４…は、炭化層３が除去された木質であり、ナイフＫは対向する頂点４…の間に挟持状に保持される。

【００２２】

このように、連続波10，10の頂点４…の木質がナイフＫの両側面に圧接するため、頂点４…は崩れ難くなり、ナイフＫを強固に保持できる。また、ナイフＫには、頂点４…のみが所定ピッチで接するので、圧接力が均一となり、植込んだ状態でのナイフＫの部分的変形を防止できる。

【００２３】

なお、図１では、２個の半割体１，１の境界線を渡るナイフ植込用溝２は形成されていないが、そのような溝２を形成することも可能である。

【００２４】

【考案の効果】

本考案は、上述の如く構成されるので、次に記載する効果を奏する。

【００２５】

請求項１記載のナイフ植込用ダイボードによれば、（厚み寸法にばらつきがあっても）ナイフをナイフ植込用溝２内に容易に圧入できると共に、一旦植込んだナイフを強固に固定保持できる。

【００２６】

請求項２記載のナイフ植込用ダイボードによれば、（厚み寸法にばらつきがあ

っても）ナイフ植込溝２に一旦植込んだナイフを、一層強固に固定保持できる。

【００２７】

請求項３記載のナイフ植込用ダイボードによれば、請求項１又は２記載のものと同様の効果を奏すると共に、ナイフの肉厚が大きいものに対応して大きな幅寸法のナイフ植込用溝２を１回のレーザー照射にて形成でき、生産性の向上と製造コストの削減に貢献できる。また、ナイフ植込用溝２内に植込んだナイフを、がたつかないように保持できる。

【００２８】

請求項４記載のナイフ植込用ダイボードによれば、請求項２記載のものと同様の効果を奏すると共に、ナイフの肉厚が大きいものに対応して大きな幅寸法のナイフ植込用溝２を１回のレーザー照射にて形成でき、生産性の向上と製造コストの削減に貢献できる。また、ナイフ植込用溝２内に植込んだナイフを、木質による弾性力にて一層強固にかつがたつかないように保持できる。

JAPANESE [JP,3015518,U]

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CLAIMS

[Utility model registration claim]
[Claim 1] The die board for knife thickets on which the configuration of the slot 2 for knife thickets is characterized by being a **** type in the die board which constitutes the shape of a cylinder in the state where it attached in the die cylinder.
[Claim 2] The die board for knife thickets on which peak 4 -- of a wave is characterized by having the continuous wave 10 crushed at the time of knife pressing fit, and the **** type slot 2 for knife thickets where it has 10 in a both-sides side where it accomplished the shape of a cylinder in the state where it attached in the die cylinder and Knife K is planted.
[Claim 3] The die board for knife thickets according to claim 1 or 2 into which the slot 2 for knife thickets was processed by pulse oscillation irradiation of laser.
[Claim 4] The continuous wave 10 crushed at the time of knife pressing fit while the quality of the material is wood quality, the slot 2 for knife thickets was processed by pulse oscillation irradiation of laser and the both-sides side of this slot 2 for knife thickets had the carbonization layer 3, and peak 4 -- of 10 are a die board for knife thickets according to claim 2 which the above-mentioned carbonization layer 3 is removed and is wood quality.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed explanation of a design]
[0001]
[Industrial Application]
This design is related with the die board for knife thickets.
[0002]
[Description of the Prior Art]
As a die board for knife thickets in which the band-like knife for cutting pasteboard etc. in a predetermined configuration is planted, there were some which constitute the shape of a cylinder where two half-segmented objects are attached in a die cylinder, for example. The deer was carried out, with the die board for knife thickets of the shape of a conventional cylinder, irradiating laser continuously in the direction which intersects perpendicularly with the axial center of a half-segmented object, movement of a laser discharge nozzle in a direction parallel to rotation and the axial center of the circumference of the axial center of a half-segmented object was controlled, and the slot for knife thickets which has the both-sides side which counters in parallel with mutual was formed in the peripheral face of the half-segmented object which accomplishes a die board.
[0003]
[Problem(s) to be Solved by the Device]
However, with the conventional die board formed as mentioned above, when a half-segmented object was wood quality and the knife was pressed fit in the slot since a both-sides side parallel to both the slots for knife thickets served as a carbonization layer, the brittle carbonization layer intervened between the side of a knife, and the wood quality of a die board, and there was a problem that the fixed intensity of a knife became small. Moreover, since the slot for knife thickets was formed of the continuous irradiation of laser, the energy density of laser became comparatively small and has not formed the slot of a big width-of-face size in one irradiation. For this reason, when the thickness of the knife which should be planted was size, once forming the unilateral side of the slot by the continuous irradiation of laser, the position could be shifted horizontally slightly, the other sides of a slot had to be again formed in the continuous irradiation of laser, the slot for knife thickets of a big width-of-face size had to be formed, and processing efficiency was bad.
[0004]
Furthermore, since Laser c will be irradiated in the direction which intersects perpendicularly with the axial center b of a half-segmented object a as shown in drawing 7 , if the slot for knife thickets is formed like the above in two slots of small width of face, an axial center b and abbreviation, as the small slot d formed previously and the small slot e formed in behind do not become parallel to mutual in the cross section but it is shown in drawing 8 , when forming the slot of an parallel direction The big both-sides sides g and g of the slot f for knife thickets of a width-of-face size had turned into an inclined plane which has the mutual angle theta and becomes broad gradually to the method of outside. For this reason, even if it pressed the knife fit in Slot f after that, the crevice was generated into the portion of the outside of Slot f, and there was a problem that a knife shook.
[0005]

Then, this design aims at offering the die board for knife thickets which can be held so that the once fixed knife may not be shaken while it solves an above-mentioned problem and can fix a knife firmly.
[0006]
[Means for Solving the Problem]
The configuration of the slot for knife thickets is a **** type in the die board which constitutes the shape of a cylinder where the die board for knife thickets applied to this design in order to attain the above-mentioned purpose is attached in a die cylinder. Moreover, it has the **** type slot for knife thickets which has the continuous wave by which the peak of a wave was crushed at the time of knife pressing fit in a both-sides side where it accomplished the shape of a cylinder in the state where it attached in the die cylinder and a knife is planted.

[0007]
In addition, being processed by pulse oscillation irradiation of laser also has a desirable slot for knife thickets. Moreover, the quality of the material is wood quality, while the slot for knife thickets is processed by pulse oscillation irradiation of laser and the both-sides side of this slot for knife thickets has a carbonization layer, the above-mentioned carbonization layer is removed and it is desirable [the peak of the continuous wave crushed at the time of knife pressing fit] that it is also wood quality.
[0008]
[Function]
(according to a claim 1) Since the configuration of the slot for knife thickets is a **** type, it turns into that the both-sides side of a slot is wavelike. Moreover, if a knife is planted, since only the peak portion of the wave of the both-sides side of a slot will carry out a pressure welding to the both-sides side of a knife, even if dispersion is in the thickness size of a knife, there is no shakiness, and a knife is held firmly.
[0009]
(according to a claim 2) Where a knife is planted, since the peak of the wave of the both-sides side of a slot is crushed at the time of knife pressing fit, even if dispersion is in the thickness size of a knife, the peak of the wave carries out a pressure welding to the both-sides side of a knife strongly, and a knife is held firmly.
[0010]
(according to a claim 3) Since the slot for knife thickets is processed by pulse oscillation irradiation of laser, the energy density of the laser irradiated becomes large and the bore of the hole produced on a die board by one momentary laser radiation becomes large. For this reason, when the thickness of a knife is large, it becomes possible to enlarge ****-like the slot for knife thickets. Moreover, the both-sides side of the slot for knife thickets becomes parallel to mutual in a cross-section configuration, and a knife does not shake in the state which planted the knife.
[0011]
(according to a claim 4) While compressive strength becomes large, as for the portion of the peak which the carbonization layer was removed and carried out the pressure welding of the peak of the continuous wave crushed when a knife was pressed fit in the slot for knife thickets to ** which is wood quality, and the knife, a contact pressure also serves as size.
[0012]
[Example]
Hereafter, based on the drawing in which an example is shown, this design is explained in full detail.
[0013]
Drawing 1 shows one example of the die board for knife thickets concerning this design, and this die board is for carrying out fixed maintenance of the knife which cuts papers, such as pasteboard, continuously in a predetermined configuration, consists of two half-segmented objects 1 and 1, and constitutes the shape of a cylinder in the state where it attached in the die cylinder of an illustration abbreviation.

[0014]
As a deer is carried out and it is shown in drawing 1 , drawing 2 , and drawing 3 , this die board has the shape of a continuous wave in which a configuration is a **** type and the both-sides side has much peak 4 -- of slot 2 -- for knife thickets.
[0015]
Moreover, the quality of the material of this die board --- 1, i.e., a half-segmented object, and 1 --- is the wood quality of a laminating plywood, the slot 2 for knife thickets is processed by pulse oscillation irradiation of laser, and, as for the both-sides side of this slot 2 for knife thickets, the carbonization layers 3 and 3 are formed by laser heat (refer to drawing 2 and drawing 3). That is, wood quality burns with the heat of laser, it carbonizes, and the carbonization layers 3 and 3 are formed as a film along the both-sides side of the shape of a continuous wave of the slot 2 for knife thickets.
[0016]
Drawing 4 shows an example of the recessing equipment for forming the slot 2 for knife thickets by pulse oscillation irradiation of the above laser. by the way, this equipment The laser introduction arm 5 into which pulse oscillation laser is introduced from the high power laser generator outside drawing while being fixed to a floor line etc., The laser radiation nozzle 6 attached at the nose of cam of the arm 5 possible [vertical movement], It has the slide housing 8 which has the rotation supporter 7 in which the material of the die board A of this design is attached, and the fixed pedestal 9 which supports the slide housing 8 possible [a slide in a direction parallel to the axial center of the rotation supporter 7]. The laser by which pulse oscillation irradiation is carried out from the above-mentioned nozzle 6 is discharged in the direction which intersects perpendicularly with the axial center M of the die board A.
[0017]
(Output signal from control means, such as a computer outside drawing) Performing the roll control of the above-mentioned rotation supporter 7, and reciprocation control of the slide housing 8, and giving delivery of every a minute size, laser is intermittently irradiated from the irradiation nozzle 6, and the above-mentioned **** type slot 2 is formed.
[0018]
Specifically, in the cross section of drawing 3 , since it irradiates intermittently as a pulse, laser with a high energy density is irradiated, and an oversized hole can be formed in a half-segmented object 1 as compared with the path size of laser. By opening the hole so that more than one may continue mutually in a predetermined pitch, the **** type slot 2 for knife thickets is formed.
[0019]
That is, according to pulse oscillation irradiation, as compared with continuous irradiation, the energy density of laser becomes high and the bore of the hole produced by 1 time of the pulse can be enlarged.
Therefore, along with the line (configuration) set up beforehand, the large slot 2 for knife thickets corresponding to a knife heavy-gage only by performing one kind of pulse oscillation irradiation of laser can be formed, and processing efficiency becomes high. In addition, it is also easy to form the small slot 2 for knife thickets.
[0020]
Moreover, since the both-sides side of the slot 2 for knife thickets is formed simultaneously, it is parallel to mutual in the cross section. For this reason, as shown in drawing 5 , where Knife K is planted in a slot 2, it stops arising between the both-sides side of Knife K, and the peaks 4 and 4 of the continuous wave of the slot 2 which contacts it, and a crevice can prevent shakiness in it.
[0021]
When this is explained in detail, as shown in drawing 6 , where Knife K is pressed fit and planted, peak 4 -- of a wave has the continuous wave 10 crushed at the time of knife pressing fit, and 10 in a both-sides side.
And it is the peak 4 where the continuous wave 10 crushed at the time of knife pressing fit and peak 4 -- of 10 are the wood quality from which the carbonization layer 3 was removed, and

Knife K counters. -- It is held in the shape of pinching in between.
[0022]
Thus, since [of a continuous wave 10 and peak 4 -- of 10] wood quality carries out a pressure welding to the both-sides side of Knife K, peak 4 -- stops being able to collapse easily and can hold Knife K firmly. Moreover, on Knife K, since only peak 4 -- touches in a predetermined pitch, a contact pressure becomes uniform and partial deformation of the knife K in the state where it planted can be prevented.
[0023]
In addition, in drawing 1 , although the slot 2 for knife thickets to which the boundary line of two half-segmented objects 1 and 1 is crossed is not formed, it is also possible to form such a slot 2.
[0024]
[Effect of the Device]
Since this design is constituted like ****, it does so the effect indicated below.
[0025]
According to the die board for knife thickets according to claim 1, while being able to press a knife fit easily in the slot 2 for knife thickets (even if dispersion is in a thickness size), the fixed maintenance of the once planted knife can be carried out firmly.
[0026]
According to the die board for knife thickets according to claim 2, the fixed maintenance of the knife once planted in the knife thicket slot 2 (even if dispersion was in the thickness size) can be carried out still more firmly.
[0027]
According to the die board for knife thickets according to claim 3, while doing so the same effect as a thing according to claim 1 or 2, corresponding to what has the large thickness of a knife, the slot 2 for knife thickets of a big width-of-face size can be formed in one laser radiation, and it can contribute to improvement in productivity, and curtailment of a manufacturing cost. Moreover, the knife planted in the slot 2 for knife thickets can be held so that it may not shake.
[0028]
According to the die board for knife thickets according to claim 4, while doing so the same effect as a thing according to claim 2, corresponding to what has the large thickness of a knife, the slot 2 for knife thickets of a big width-of-face size can be formed in one laser radiation, and it can contribute to improvement in productivity, and curtailment of a manufacturing cost. Moreover, the knife planted in the slot 2 for knife thickets can be held so that it may not shake still more firmly in the elastic force by wood quality.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the perspective diagram showing one example of this design.
[Drawing 2] It is an important section enlarged view.
[Drawing 3] It is an important section expanded sectional view.
[Drawing 4] It is the simple front view showing an example of recessing equipment.
[Drawing 5] It is an expanded sectional view in the state where the knife was planted.
[Drawing 6] It is an expanded sectional view in the state where the knife was planted.
[Drawing 7] It is manufacturing process explanatory drawing of the conventional example.
[Drawing 8] It is the important section expanded sectional view of the conventional example.
[Description of Notations]
2 Slot for Knife Thickets
3 Carbonization Layer
4 Peak
10 Continuous Wave
K Knife

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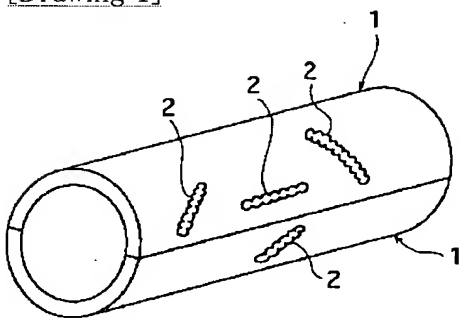
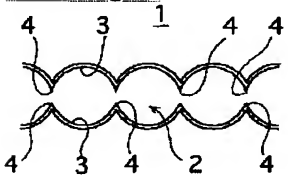
DRAWINGS

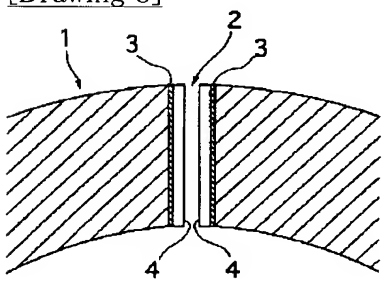
[Drawing 1]



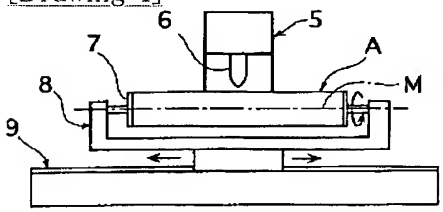
[Drawing 2]



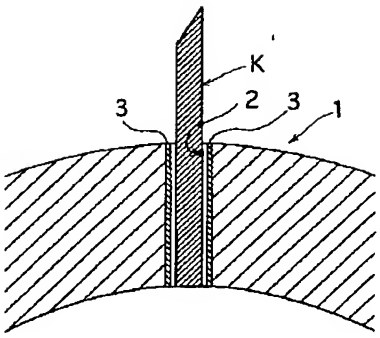
[Drawing 3]



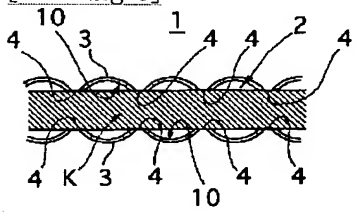
[Drawing 4]



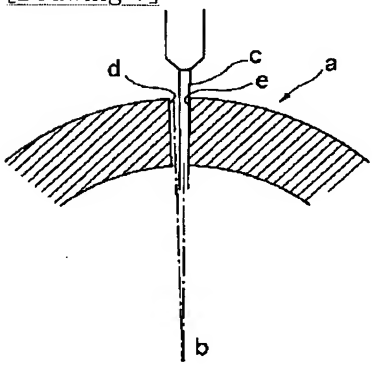
[Drawing 5]



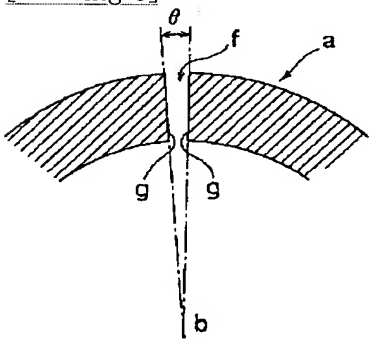
[Drawing 6]



[Drawing 7]



[Drawing 8]



[Translation done.]